

REMARKS

Applicants have carefully reviewed the Office Action dated February 8, 2006, and respectfully request reconsideration in view of the foregoing amendments and the following remarks.

Applicants are enclosing a copy of German Priority Document No. 10308755.9, filed February 28, 2003, as requested by the Examiner.

Claims 1, 2, 4, 5, 7, 8 and 24 have been amended and Claims 3, 10-23, 25 and 27-67 have been canceled. Claim 1 has been amended to require the mixing to be carried out continuously in a mixing nozzle and to require recirculating at least a portion of the two-component coating mixture from an outlet of the homogeniser to an inlet of the homogeniser, which is arranged downstream from the mixing nozzle.

Support for continuously mixing is found throughout the specification, e.g., at page 12, lines 1-3, which discloses that the coating mixture may also be prepared not continuously, which implicitly supports preparing the product continuously. Support for using a mixing nozzle as the mixer is disclosed at page 9, line 21. Support for recirculating the coating mixture is found in canceled Claim 3 and support for the homogeniser being downstream from the mixing nozzle is found in canceled Claim 10. The remaining amendments have been made to correct minor clerical errors or to more fully comply with U.S. claims practice.

Claims 1-19 have been rejected under 35 USC 112, second paragraph, as being indefinite because it is unclear what is meant or intended by the language "repeatedly in succession."

Applicants submit that this rejection has been overcome by deleting "in succession" from Claim 1 and by stating that the coating mixture is homogenised repeatedly by recirculating at least a portion of the coating mixture from the outlet to the inlet of the homogeniser.

In view of the preceding amendments and remarks, it is submitted that the subject claims are definite and in compliance with 35 USC 112, second paragraph. Accordingly, withdrawal of this rejection is requested.

Claims 1-4, 6, 7, 23-25 and 60-67 have been rejected under 35 USC 102(b) as being anticipated by U.S. Patent 5,723,518 to Kahl et al. The Examiner contends that the reference discloses the homogenisation of two component aqueous

polyurethane coating compositions by forcing the aqueous two component mixture through a jet disperser and also recycling in Figure 5.

Applicants traverse this rejection in view of the amendments to Claim 1 to require continuously mixing in a mixing nozzle in combination with using a homogeniser in which a portion of the coating mixture is recycled from the outlet to the inlet of the homogeniser. Kahl et al does not disclose this combination of features. In one embodiment of Kahl et al, is shown in Figure 3, the mixing is performed continuously but lacks a separate homogeniser. In another embodiment shown in Figure 5, which shows a recycle stream, the mixing is performed batchwise in tank 30 instead of continuously. Because Kahl et al does not disclose the combination of continuously mixing and a homogeniser with recycle, it is submitted that this reference fails to anticipate the subject claims. Accordingly, withdrawal of this rejection is requested.

Claims 1-9, 23-26 and 60-67 have been rejected under 35 USC 103(a) as being unpatentable over U.S. Patent 5,723,518 to Kahl et al in view of U.S. Patent 6,020,419 to Bock et al or U.S. Patents 3,892,698, 3,892,700 and 3,892,701 to Burke, Jr. or U.S. Patent 4,355,142 to Khungar et al or U.S. Published Application No. 2001/00012872 to Dong et al. In view of the secondary references the Examiner contends that it would have been obvious to practice the method of Kahl et al using a recycle steam to reintroduce the composition into the homogeniser so as to obtain improved dispersions.

Applicants traverse this rejection because none of the references teach or suggest continuously mixing in a mixing nozzle in combination with using a homogeniser in which a portion of the coating mixture is recycled from the outlet to the inlet of the homogeniser. Even though Kahl et al discloses an embodiment in Figure 5 in which a coating mixture is recycled back into the jet disperser (homogeniser), this reference does not allow for recycle to occur at all times. In Figure 5 valve 44 is connected to an applicator, for example, a spray gun (column 4, line 55 to column 5, line 11). It is only when the coating process is interrupted by closing valve 44 that valve 45 is opened for recirculation in order to avoid pressure build-up. During normal operation no recirculation takes place.

Figure 5 also discloses batchwise mixing. When the process is interrupted

and valve 45 is opened, no new materials from the batch mixer are needed. The recycled coating composition fills line 46, pump 40 and mixer 1. If materials were continuously mixed and discharged as required by the present invention, then there would be a build-up of material in the lines and equipment.

In the process shown in Figure 3 of Kahl et al the repeated homogenisation is performed by forcing the mixture through several homogenisers which are arranged in series. This leads to an increased pressure drop because of the arrangement of the homogenisers in series. In the claimed process the mixture is homogenised repeatedly by flowing more than one time through the same homogeniser with subsequent recirculation. Therefore, the pressure drop which has to be overcome is small compared to that of the process according to Figure 3 of Kahl et al.

Based on the teachings of Kahl et al it would not be obvious to combine continuous mixing in a mixing nozzle with a homogeniser using a recycle stream that can be operated at all times.

The deficiencies of Kahl et al are not overcome by the teachings of the secondary references. Even though the Burke, Jr. references disclose the use of homogenisers and recycle, these references do not suggest the combination of continuous mixing in a mixing nozzle to form a pre-emulsion in combination with recycle to the homogenisers. Khungar et al and Dong et al also suffer from the same deficiencies as the Burke, Jr. references because they also fail to disclose the advantages which are related to continuous mixing prior to homogenising and, in particular, do not disclose the use of a mixing nozzle as mixer.

The Examiner relies upon Kahl et al and Bock et al for a disclosure of the use of homogenisers in series, which he considers to be analogous to using a recycle stream. However, as previously discussed when homogenisers are used in series a pressure drop occurs in each homogeniser. Therefore, the material must be under sufficient pressure to be able to pass through all of the homogenisers.

To the contrary when the coating mixture is passed repeatedly through the same homogeniser it can be repressurized before it reenters the homogeniser by the circulation pump. Therefore, the use of homogenisers in series is not completely analogous to recycle, especially when low pressures are maintained in the system as required by Claim 2.

Based on the preceding comments, it is submitted that the references do not disclose the advantages that are obtained by continuously mixing prior to homogenization and do not disclose the use of continuous mixing in a mixing nozzle in combination with the use of homogenisers and a recycle stream. In addition, none of the references disclose the modifications that would be necessary to be able to use recycle in the Kahl et al process during normal operation as opposed to only recycling during an interruption in the process.

For these reasons it is submitted that the applied references do not render the subject claims unpatentable in accordance with 35 USC 103(a). Accordingly, withdrawal of this rejection is requested.

The foregoing is believed to be a complete response to the Office Action dated February 8, 2006, and in view of the preceding amendments and remarks, a Notice of Allowance is respectfully requested.

Respectfully submitted,

By Thomas W. Roy
Thomas W. Roy
Attorney for Applicants
Reg. No. 29,582

Bayer MaterialScience LLC
100 Bayer Road
Pittsburgh, Pennsylvania 15205-9741
(412) 777-3820
FACSIMILE PHONE NUMBER:
(412) 777-3902

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